

**COUNTY OF SACRAMENTO
EMERGENCY MEDICAL SERVICES AGENCY**



Program Document: **Vascular Access**

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Signature on File

EMS Medical Director

Signature on File

EMS Administrator

Purpose:

- A. To establish an Emergency Medical Services (EMS) system standard for the establishment of Vascular Intravenous (IV) access.
- B. To describe the situations where vascular access may be established.

Authority:

- A. California Health and Safety Code, Division 2.5
- B. California Code of Regulations, Title 22, Division 9

Policy:

- A. Saline locks may be used when only administration of medication is indicated.
- B. Vascular access may be obtained outside of established policies/procedures/protocols only when clear, concise indications for clinical instability exist. Clinical instability is based on the Paramedic's judgment of available data and/or in conjunction with direct medical oversight.
- C. Vascular access shall not be established under the term "precautionary."
- D. Paramedics may access pre-existing vascular devices in cardiac arrest or in pending cardiac arrest situations only, including arteriovenous shunts, peripherally inserted central catheters (PICC), and tunneled catheters.
 - 1. Access to these devices in other situations requires a BASE HOSPITAL ORDER.
 - 2. Attempt to withdraw and discard 5-10 ml. of blood from the device before infusion. If unable to withdraw, proceed with the infusion.
- E. Select the most appropriate site:
 - 1. Peripheral Intravenous (IV) Catheter:

- a. Peripheral IV is the preferred choice for all patients requiring vascular access.
 - b. Select insertion site and needle size as appropriate to the patient's condition.
 - c. Utilize aseptic technique.
 - d. Saline locks may be used in lieu of intravenous lines when:
 - i) Only administration of medication is indicated, and
 - ii) Fluid resuscitation or challenge is not anticipated.
 - e. If a saline lock was started, flush with 5 ml normal saline (NS).
2. External Jugular IV:
- a. External Jugular IV is indicated in patients when no other peripheral IV can be established and the patient requires immediate fluid administration or vascular access for IV medications.
3. Intraosseous (IO):
- a. Indications for intraosseous vascular access:
 - i) Adult and pediatric patients weighing ≥ 3 kg who are unable to be successfully intravenously cannulated and who need administration of medication or intravascular (IV) fluids for:
 - (a) Cardiac Arrest
 - (b) Patients in extremis who have IMMEDIATE LIFE-SAVING NEED for IV medication or fluids (critical trauma patients)
 - (c) When indicated by protocols
 - b. Precautions:
 - i) IO access will NOT be established as precautionary. Only patients who have an IMMEDIATE need for an IO medication and who are in extremis when peripheral venous access cannot be obtained shall undergo intraosseous cannulation. This information will be documented on the patient care report.
 - c. Contraindications:
 - i) Fracture in target bone
 - ii) Infection at the area of insertion
 - iii) Excessive tissue at the insertion site with the absence of anatomical landmarks
 - iv) Previous significant orthopedic procedures at the site, prosthetic limb or joint
 - v) IO or attempted IO access in the target bone in the past forty-eight (48) hours.

- d. All other uses of the IO route require a base hospital order.
- e. Insertion Sites in Order of Preference:

Adults:

Proximal Humerus

Proximal Tibia

Distal Tibia

Pediatrics:

Proximal Tibia

Distal Tibia

Distal Femur

- A. Insertion sites depend on patient age/size/anatomy, presenting condition, ability to locate anatomical landmarks, provider training/experience, and clinical judgment. The insertion site is also dependent on the absence of contraindications, accessibility of the site, and the ability to monitor and secure the site.
- 1. I/O Pain Control and NOTES:
 - a. Adult patients unresponsive to pain, rapid flush with 10 ml of normal saline. For pediatric patients unresponsive to pain, flush with 5 ml of normal saline.
 - b. In a conscious adult patient with a response to pain, flush the IO with 2 ml of 2% Lidocaine (40mg) slowly at a rate of 1-2 minutes.
 - c. Wait 60 seconds then flush with 10ml of normal saline IO.
 - d. Slowly administer subsequent ½ dose, 1ml of 2% Lidocaine (20mg) via IO.
 - e. In a conscious pediatric patient responsive to pain, administer 0.5 mg/kg of 2% Lidocaine, not to exceed 40mg, via IO slowly over 1-2 minutes.
 - f. Flush with 5 ml of normal saline.
 - g. There will be only one attempt per extremity at establishing IO access.
 - h. No more than two (2) total attempts will be allowed for IO access.
 - i. Scene time will not be delayed for IO access attempts.
 - j. Document why more than one (1) IO attempt was made on scene.